



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,163	08/05/2003	Thomas M. Graettinger	303.841US1	6344
21186	7590	03/23/2005	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			ABRAHAM, FETSUM	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/634,163

Applicant(s)

GRAETTINGER, THOMAS M.

Examiner

Fetsum Abraham

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 22-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 41-50 is/are allowed.
- 6) ☒ Claim(s) the rest is/are rejected.
- 7) ☒ Claim(s) 23 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 22,25 are rejected under 35 U.S.C. 102(b) as being anticipated by Schuele et al (5,930,639).**

The patent discloses a stud capacitor in the front page comprising a first conductive plug (28) on a substrate (10), a stud (22) partially embedded in a first dielectric stack (24) coupled with the plug and an upper dielectric stack (30) disposed above the first dielectric stack and the stud (22) extending into the upper dielectric stack.

As for claim 25, the storage cell dielectric film is layer (24) and the plate is layer (26).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 26-30,51-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuele et al.**

As for claims 26,28, although the prior art may not have used the claimed dielectric thickness, the thickness is, however, known to be variable in the art that

depends on anticipated value of capacitance. Therefore, it would have been obvious to one skilled in the art to use a particular thickness in order to achieve a desired capacitance of a storage capacitance.

As for claim 27, the dielectric material of the structure, all claimed materials are known capacitive dielectric materials that it would have been obvious for one skilled in the art to chose one that suits the anticipated capacitance of a given capacitor. Please note that the choice depends on desired dielectric thickness that depends on the dielectric constant of the material, which in turn dictates the overall size of the capacitor.

As for the claimed conductive material in claims 29,30 any metal can serve as the capacitive plates of any capacitor either in combination with other conductors or in singularity. Therefore, it would have been obvious to one skilled in the art to use the same conductive material for both plates in order to avoid fabrication complexity of the capacitor or different material based to achieve a specific result at the expense of fabrication complexity.

As for claims 51,52,53, the capacitor in the prior art is usable in the claimed electronic devices.

As for claims 54-58 the capacitor in the prior art is a storage capacitor in memory configurations and all memory devices have internal and external communication buses and a microprocessor controller that supervised data exchange by clocking means..

**Claims 31-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuele et al in view of Durcan et al (6,753,565).**

As for claims 31-34,36, the prior art might have been silent on the application of barrier layers between the claimed capacitive elements but the secondary patent teaches the missing about it in column 7, 40-50. Therefore, it would have been obvious to use a barrier material between the two conductors of the prior art in order to prevent oxidation from one to the other specially when the conductive materials are metal oxides.

As for claim 35, the claimed materials are material of choices in the secondary reference as taught in column 7, 40-50.

As for claims 36-38 silicides, polysilicon, refractory and metal-oxide materials are from a group of known materials widely used in the making of capacitors.

As for claim 40, although the prior art may not have used the claimed dielectric thickness, the thickness is, however, known to be variable in the art that depends on anticipated value of capacitance. Therefore, it would have been obvious to one skilled in the art to use a particular thickness in order to achieve a desired capacitance of a storage capacitance.

**Claims 23,24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

**Claims 41-50 have been allowed.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fetsum Abraham whose telephone number is: 571-272-1911. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915.

Fetsum Abraham/3/9/05

A handwritten signature in black ink, appearing to read 'Fetsum Abraham', with a long horizontal line extending to the right.